AMENDMENTS TO THE CLAIMS

1. (Original) An adaptive optics system comprising:

a deformable mirror having a reflective surface and an electrode surface, the electrode surface including a plurality of electrodes, the reflective surface configured to deform responsive to an electric potential on one or more of the electrodes;

an insulating layer formed on the electrode surface of the deformable mirror, the insulating layer exposing at least a portion of the electrodes; and

a plurality of conductive traces formed on the insulating layer, each conductive trace coupling an electrode to a perimeter region of the deformable mirror.

2. (Original) The system of claim 1, wherein the deformable mirror comprises an electro-restrictive material that deforms responsive to an electrical field caused by an electric potential on one or more of the electrodes.

3. (Original) The system of claim 1, wherein the deformable mirror comprises a piezoelectric material that deforms responsive to an electrical field caused by an electric potential on one or more of the electrodes.

4. (Original) The system of claim 1, wherein each conductive trace is coupled to a bonding pad at the perimeter region of the mirror.

5. (Original) The system of claim 1, further comprising:

a protective coating covering at least a portion of the conductive traces;

6. (Original) The system of claim 1, wherein the protective coating comprises a dielectric material.

7. (Original) The system of claim 1, wherein the perimeter region of the mirror corresponds to an edge of the mirror.

8. (Original) The system of claim 1, further comprising:

a circuit board having plurality of conductors thereon, each of the conductors for providing an electric potential to an electrode for deforming the deformable mirror; and

a strip connector coupled between the circuit board and the deformable mirror, the strip connector including a plurality of conductors for electrically coupling the conductors on the circuit board to corresponding conductive traces on the insulating layer of the deformable mirror.

9. (Original) The system of claim 8, wherein the strip connector is a zebra strip connector.

10. (Original) The system of claim 8, wherein:

each conductive trace is coupled to a bonding pad, the bonding pads of the mirror forming a generally circular pattern at the perimeter region of the mirror, and

the circuit board further includes a plurality of bonding pads coupled to the conductors on the circuit board, the bonding pads of the circuit board forming a generally circular pattern and corresponding to the bonding pads of the mirror.

11. (Original) The system of claim 8, further comprising:

a retaining plate mechanically coupled to the circuit board for providing a compressive force on the strip connector between the deformable mirror and the circuit board; and

a resilient element disposed between the deformable mirror and the retaining plate for modulating the compressive force.

12. (Original) A deformable mirror for an adaptive optics system, the mirror comprising:

a reflective surface having a central region for receiving light;

an electro-restrictive material configured to deform responsive to an electric potential, wherein a deformation of the electro-restrictive material causes the reflective surface to deform;

a plurality of electrodes coupled to the electro-restrictive material, each electrode for providing an electrical potential to a portion of the electro-restrictive material; and

a plurality of electrical connectors, each electrical connector electrically coupling an electrode to a perimeter region of the deformable mirror.

13. (Original) The deformable mirror of claim 12, wherein the perimeter region of the deformable mirror corresponds to a physical edge of the deformable mirror.

14. (Original) The deformable mirror of claim 12, wherein the perimeter region of the deformable mirror corresponds to a region of the deformable mirror that does not substantially deform.

15. (Original) The deformable mirror of claim 12, wherein the perimeter region of the deformable mirror is an area of the deformable mirror outside the placement of the electrodes.

16. (Original) The deformable mirror of claim 12, further comprising:

an insulating layer over the electrodes and exposing at least a portion of each electrode, wherein each electrical conductor is a conductive trace formed on the insulating layer.

17. (Original) The deformable mirror of claim 16, wherein each conductive trace leads to a bonding pad in perimeter region of the deformable mirror.

18. (Currently amended) The method of claim 28, wherein: ~~A method of manufacturing a deformable mirror for an adaptive optics system, the deformable mirror configured to deform responsive to an electric potential applied to the deformable mirror, the method comprising:~~

forming the electrode surface comprises:

masking an electrode pattern on a back surface of the deformable mirror, the electrode pattern defining a plurality of electrode segments;

depositing a conductive layer on the back surface to form the plurality of electrode segments;

forming the insulating layer on the electrode surface comprises:

masking an insulator pattern over the electrode segments, the insulator pattern exposing at least a portion of each electrode segment;

depositing an insulating material over the electrode segments according to the insulator pattern; and

forming the conductive traces on the insulating layer comprises:

masking a trace pattern for defining a plurality of connections, each connection from an exposed location of an electrode segment to a location in a perimeter region of the deformable mirror; ~~and~~

depositing conductive material to form a plurality of conductive traces according to the trace pattern.

19. (Original) The method of claim 18, wherein the insulator pattern includes at least one hole for each electrode segment, the hole for exposing the electrode segment.

20. (Original) The method of claim 18, wherein the trace pattern further defines a bonding pad in a perimeter region of the deformable mirror for each conductive trace.

21. (Original) The method of claim 18, further comprising:

applying a protective coating over at least a portion of the conductive traces.

22. (Original) The method of claim 21, wherein protective coating comprises a dielectric material.

23. (Original) The method of claim 18, further comprising:

electrically coupling the deformable mirror to a circuit board so that each of the conductive traces on the mirror is coupled to a corresponding conductor on the circuit board, the circuit board for providing electrical potential to the conductive traces.

24. (Original) The method of claim 23, wherein the deformable mirror is coupled to the circuit board using a strip connector.

25. (Original) The method of claim 24, wherein the strip connector is a zebra strip connector.

26. (Original) The method of claim 23, further comprising:

securing the deformable mirror in electrical connection with the circuit board with a retaining plate, the retaining plate providing a compressive force between the deformable mirror and the circuit board.

27. (Original) The method of claim 26, further comprising:

disposing a resilient element between the deformable mirror and the retaining plate for modulating the compressive force.

28. (New) A method of manufacturing a deformable mirror for an adaptive optics system, the method comprising:

providing a deformable mirror having a reflective surface on a front surface of the deformable mirror;

forming an electrode surface on a back surface of the deformable mirror, the electrode surface including a plurality of electrodes, the reflective surface configured to deform responsive to an electric potential on one or more of the electrodes;

forming an insulating layer on the electrode surface of the deformable mirror, the insulating layer exposing at least a portion of the electrodes; and

forming a plurality of conductive traces on the insulating layer, each conductive trace coupling an electrode to a perimeter region of the deformable mirror.